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RESEARCH ARTICLE

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Organizational transition management of circular business model innovations

Florian Hofmann[1,2] | Melanie Jaeger-Erben[3]

[1]Faculty of Economics and Management, Department Strategic Leadership and Global Management, Technical University of Berlin, Berlin, Germany

[2]Department Environmental and Reliability Engineering, Fraunhofer-Institute for Reliability and Microintegration, Berlin, Germany

[3]Faculty of Electrical Engineering and Computer Science, Transdisciplinary Sustainability Science in Electronics, Technical University of Berlin, Berlin, Germany

Correspondence
Florian Hofmann, Fraunhofer-Institute for Reliability and Microintegration, Department Environmental and Reliability Engineering, Gustav-Meyer-Allee 25, Berlin 13355, Germany.
Email: florian.hofmann@izm.fraunhofer.de

Abstract

Scholars and practitioners across fields increasingly recognize that business models for the circular economy may be an effective lever for solving ecological persistent problems such as climate change, biodiversity loss, and growing natural resource scarcity. Despite a growing interest in the potential of circular business models, interconnections between the organizational dimensions of firms and their business model innovation processes remain underexplored. Based on problem-centered expert interviews with business consultants experienced in circular business development, this study creates a conceptual model that offers structured knowledge about why firms steadily reproduce linear BMs and how incumbents manifest themselves as a constant linear-oriented value creation system. The model also demonstrates organizational conditions and management strategies that frustrate the reproduction of linear BMs and, thus, enable initial moves towards CBM innovation. Building on this, the article provides a set of propositions on how an organizational transition management may be configured and what incumbents require to successfully navigate circular business model innovation. The findings provide a foundation for a contemporary understanding of circular business model transition management, which simultaneously serve as impulses for future research investigations.

KEYWORDS

business model innovation, circular business model, circular economy, sustainability innovation, sustainable business model sustainability transition management

1 | INTRODUCTION

Against the current backdrop of persistent ecological problems such as climate change, massive biodiversity loss, and growing resource scarcity (Rotmans & Loorbach, 2009; Schuitmaker, 2012) profound societal change seems a necessary condition to achieve intra- and intergenerational justice and create a sustainable future (Intergovernmental Panel on Climate Change [IPCC], 2014; United Nations [UN], 2015). In particular, the unidirectional arranged system of production and consumption, known as the "take-make-dispose" model and based upon a vision of continued economic expansion and perpetual raw material extraction, has put tremendous pressure on nature. It has become evident that the current economic approach cannot be sustained on a planet with finite resources and limited emission absorption capacities (Steffen et al., 2015).

The concept of a circular economy (CE) as a potential economic transition model has gained growing popularity among corporate representatives, politicians, and scientists (Boulding, 1966; Ghisellini et al., 2016; Kirchherr et al., 2017; Korhonen et al., 2018; Murray et al., 2017; Pearce & Tuner, 1989; Su et al., 2013). The CE is

characterized by closing and slowing down resource flows, traits that reflect a difference from linear thinking and practice (Bocken et al., 2016; McDonough & Braungart, 2002; Stahel & Reday-Mulvey, 1981). Thus, the CE can be distinguished from current linear models production and consumption according to, first, how the flows of materials are organized (i.e., closing resource flows), and second, the speed at which they circle within the prevailing economic order (i.e., slowing down resource flows). The CE connects post-use and process waste with production through processes such as recycling and repurposing of by-products, and attempts to preserve the inherent value of products and product components by maximizing the number of consecutive use phases and use time in each of these phases via repair, maintenance, upgrade, resale, refurbishment, remanufacturing. CE advocates argue that the imperative of continuous economic growth can thus be perpetuated by decoupling expansion from ecological burdens (European Commission [EC], 2016; Ellen MacArthur Foundation [EMF], 2013; Rubel et al., 2018). Whether this target horizon, articulated from an ecological modernization position, is legitimate and justified to accomplish the transition from the contemporary "cowboy economy" (Boulding, 1966: 9) towards an economic system that flourish within planetary boundaries (O'Neill et al., 2018; Steffen et al., 2015) should not be discussed here, but some authors propose first tentative ideas to overcome the growth dictate in order to diversify CE conceptualizations (e.g. Hofmann, 2019; Hobson & Lynch, 2016; Millar et al., 2019; Zink & Geyer, 2017; Zwiers et al., 2020). The study presented here adopts an agnostic attitude to economic growth (Raworth, 2018), and rather emphasizes to reduce the absolute depletion of nature between the dialectic of consumption and production.

Scholars and practitioners have stressed the importance of innovative business models (BMs) in accelerating the shift to a CE, perceiving such BMs as levers and instruments to the "process of industrial mutation" (Schumpeter, 1976: 83). Novel BMs have the potential to trigger market irritations, and, by extension, the restructuring of the organizational processes of entire societies, as they couple multiple social actors and mediate between the spheres of production and consumption (Bidmon & Knab, 2017; Evans et al., 2017). Corporations with circular business models (CBMs), in particular, are said to disrupt the unidirectional and linear industrial economic system from within (Schaltegger et al., 2016). One critical question that remains unanswered by extant CBM literature is how firms can successfully navigate corporate transitions to circularity? CE research at the corporate level has typically concentrated on two types of research questions. First, such research has considered justifications for companies embracing modes of circular value creation and offerings, focusing on motivational aspects, drivers, and opportunities of CBM innovation (such as enhancing competitiveness by increasing cost efficiency due to lower demand for energy and physical resource inputs; attracting new environmental-conscious customer segments; or becoming more autonomous and independence from volatile commodity markets, (Gusmerotti et al., 2019; Planing, 2018; Rizos et al., 2016; Rubel et al., 2018; Whalen et al., 2017) and the financial, organizational, market, and institutional risks and barriers of integrating CE principles into daily business routines (Linder & Williander, 2015; Sousa-Zomer et al., 2018; Tura, Hanski, Ahola, Stahle, Piiparinen, & Valkokari, 2019; Vermunt et al., 2019). Second, existing CE studies have explored the contours of CBMs, describing the constitutive elements of CBMs and their strategic design that can be summarized as conceptual debates (e.g. Bocken et al., 2016; Hofmann, 2019; Lewandowski, 2016; Lüdeke-Freund et al., 2018; Rosa et al., 2019). However, with a few exceptions (Bocken et al., 2018; Chen et al., 2020; Heyes et al., 2018; Khan et al., 2020), there is a lack of investigations of how firm management can initiate and navigate CBM innovation while taking organizational dynamics and restructuring processes into account. As such, the organizational dimension of CBM innovation remains uncharted territory. Contrary to the predominant view of firms in existing CBM literature as static entities, firms are social systems that are simultaneously stable and dynamic in their emergence, thereby characterized by a constant state of flux. They are composed of a multitude of events and occurrences that actually cease at the moment of their emergence if they are unable to generate an impact over time (Luhmann, 2009; Weick, 1979). Thus, the development of a firm is continuously uncertain, subject to a myriad of opportunities and shaped by creative moments, which unfold their dynamics through the reciprocal interplay of decision patterns, communication structures, and series of acts (Rüegg-Stürm & Grand, 2016). The rotational searching, experimenting, and learning to stimulate BM innovation can only be successfully evaluated if these dynamic organizational dimensions of the firm are taken into account (Foss & Saebi, 2015). But current CBM literature has mostly overlooked this research domain, and offers a rather static view of a complex and constantly changing corporate reality.

This study attempts to fill this gap in the literature by pursuing the question of "how" firms can navigate transitions to CBMs. Drawing on problem-centered expert interviews with business consultants who offer advisory services for circular business development, the study provides a set of propositions on how an organizational transition management may be configured and how to assist incumbents in navigating CBM innovation. Section 2 introduces circular business model innovation as a type of radical corporate change and renewal. Section 3 describes the study's research design, while Section 4 aggregates the main findings in a conceptual model. Finally, Section 5 discusses three propositions on the organizational conditions and management recipes that advance CBM innovation in incumbents. These propositions reflect starting points for a contemporary understanding of firm transitions towards circularity and serve as impulses for future research directions.

2 | CIRCULAR BUSINESS MODEL INNOVATION AS A FORM OF RADICAL CORPORATE RENEWAL

Objectively, BMs consist of interlaced interpersonal acts and communications among internal and external stakeholders as well as human-object interactions (e.g., human-artifact, human-computer, human-machine, human-robot) that configure the specific value creation

system of firms. From these perspectives, BMs reflect the empirically observable functions of firms that distinguish them from other market actors (Massa et al., 2017). Thus, they articulate a firm's unique central mode for creating and capturing value, which can be understood both in terms of processes (i.e., dynamics of activities, resources, and networks of social actor groups) and results (i.e., products and services that appear as vehicles of values) (Casadesus-Masanell & Ricart, 2010; Demil & Lecocq, 2010; Massa et al., 2017; Osterwalder et al., 2005). From a subjective perspective, BMs are images of firm representatives and persons who are directly and/or indirectly influenced by the company and how such individuals construe the company's value creation system. Hence, BMs are mental models or cognitive schemas of individuals who subjectively construct their own representations of the boundaries between the firm and its environment, its procedures for social interaction, and potential trajectories for future development (Aspara et al., 2013; Doz & Kosonen, 2010; Magretta, 2002; Massa et al., 2017; Rüegg-Stürm & Grand, 2016; Velu & Stiles, 2013).

In the face of climate change, the increasing devastation of nature, and growing resource scarcity, companies need to transform their BMs more rapidly and more extensively than ever before. One possible response to these socio-ecological megatrends is the CBM. This approach connects business configurations focusing on result- and performance-oriented product-service-systems; manufacturing and offering durable, reliable, recyclable, modular, and repairable products; and/or practicing conscious sales (slow fashion etc.) (based on Bocken & Short, 2016; Bocken et al., 2016; Dyllick & Hockerts, 2002; Young & Tilley, 2006) with the consumption side of business that involves (non-)consume decisions such as repairing, maintaining, upgrading instead of buying new products; second-hand purchases; sharing; or the use of corresponding services that can be summarized as "sufficiency". CBMs are concerned with downscaling overall end-user consumption and reducing the tangible products necessary to fulfill user needs (Freudenreich & Schaltegger, 2020). CBM innovations are assumed to contribute more or less intentionally to the deceleration of natural resource consumption by restraining demand by educating and empowering consumers, prolonging product lifetimes, dematerializing value propositions, and adopting a modified attitude of marketing.

CBMs are diametrically opposed to dominant business approaches of the last decades, which mostly tend to incorporate principles of acceleration, such as raising the frequency of product innovation and boosting the number of products sold within a time period, to increase competitiveness (Boutellier et al., 2008; Krajewski et al., 2016). Burdened by their own linear aligned traces of the past and cultural fixation on the "take-make-dispose" paradigm, firms are embedded within financial, institutional, legislative, infrastructural arrangements that are shaped by path dependencies of linearity and that proactively encourage and support the design and development of linear BMs (Tura et al., 2019; Vermunt et al., 2019). These structures may contribute to a broader environment in which such a profound change in value creation modes appears unviable. Since CBMs are accompanied by extraordinarily high risks and uncertainties, CBMs may be considered economically irrational under contemporary market and social conditions. However, CBMs appear to be effective instruments for an ecological-oriented process of "creative destruction" (Schumpeter, 1934) that replace linear production and consumption styles with styles that incorporate principles of dematerialization and decarbonization. CBMs may erode and provoke existing industry arrangements, restructure entire supply chains, or even create new markets. To be a driver for solutions that ensure the future viability of the modern civilization and to secure their own long-term existence as an organization in a world of changing socio-ecological parameters, and thus also shifting economic circumstances, firms must navigate into unexplored arenas, where previous experiences, knowledge stocks, and loyal customer bases are not survival variables. Incumbents that manage and organize CBM innovation need strategies that differ from those designed to handle circular dyed BM adjustments or adaptations. Saebi's (2015) research provides a foundation for comparing the different types of BM reconfigurations in the context of the CE (Table 1).

2.1 | CBM Adjustment

CBM adjustment refers to the reproduction and stabilization of the existing BM(s) to maintain linearity. Change processes are focused on gradual adjustments in the firm's existing mesh of activities and resources, such as reducing production waste and making incremental alterations in operating routines to increase energy efficiency. Business resources, networks, and offered products and services remain the same. The scope of change is limited to a few efforts; adjustment causes neither a shift in standard value creation processes nor a modification of linear-oriented value creation modes. Principles of acceleration are still pursued.

2.2 | CBM Adaptation

Matching the demands and expectations of the social environment is the core motive of CBM adaptation. This reconfiguration represents continuous sequences of incremental improvement to adapt to the changing social environment. Value creation activities, resources, networks, and their outcomes can be affected simultaneously, with varying degree of change imposed. Examples of CBM adaption include beginning to repurpose by-products and use recycled instead of raw materials. The scope of change may involve a degree of novelty to the firm, causing shifts in routine standard value creation processes and slightly altering the value creation mode from linearity to the closing of resource flows. Principles of acceleration are still pursued.

2.3 | CBM Innovation

The main goal of CBM innovation is to shape markets, industries, and society by creating new and sustainable linkages between production and consumption systems. CBM innovation involves "the discovery of

TABLE 1 Circular business model adjustment, circular business model adaptation, circular business model innovation, adapted from Saebi (2015)

	Circular business model adjustment	Circular business model adaptation	Circular business model innovation
Planned outcome	Minor adjustments	Align with the social environment	Shape markets, industries, and the society
Scope of change (activities, resources, networks, value propositions affected)	Narrow (activities)	Narrow-wide (activities, resources, networks, value propositions)	Wide (activities, resources, networks, value propositions)
Frequency of change	Continuous	Periodically	Infrequently
Degree of radicalness	Incremental	Incremental	Radical
Degree of novelty	Not applicable	Novelty is not a requirement for the social environment	Novelty is a requirement for the social environment
Degree of linear detachment	Not applicable	Low	High
Mode of circularity	Not applicable	Close resource flows	Close and slow down resource flows

a fundamentally different BM in an existing business" (Markides 2006, 20). Thus, the process of change requires shifting value creation activities, resources, networks, and their outcomes from an existing BM to CBM. The scope of change involves novelty to the firm that results in entirely new value creation processes, which must be tested, learned, and re-stabilized. Such change comprehensively alters the value creation mode from linearity to closed and slow resource flows, with principles of acceleration no longer pursued.

3 | RESEARCH DESIGN

This study attempts to identify management recipes that facilitate the interruption of the structurally entrenched inertia of linearity plaguing many firms and foster organizational transitions towards CBMs innovation. How might an organizational transition be managed? What conditions must be created to assist incumbent firms in navigating CBM innovation?

To answer these questions, this study adopted a qualitative approach that allows for the exploration of CBM innovation's complexity. Firms are social systems that are stabilized through continuous mutual interactions between people. Due to the non-causality and unpredictability of social systems resulting from their own open decisiveness, firms are controllable only to a limited extent. As a result, they are not unambiguously determinable (Baecker, 1999; Luhmann, 2011; Rüegg-Stürm & Grand, 2016). Furthermore, firms, as heterogeneous organizations, are connected to and influence the environment in which they are embedded (Dougherty, 2002). Qualitative research methods such as problem-centered interviews enable the exploration of such complex systems through the reconstruction of systemic patterns. Since qualitative research strives to characterize the dynamics of observed social phenomena, a qualitative approach helps shed light on why and how structures solidify and acts become routines, the conditions that may elicit organizational reinventions, and the temporal and emergent contextual circumstances and constraints of such reinvention (Dougherty, 2002). Consequently, the epistemological interest of this study was not to reconstruct subjective perceptions of the world, but to reveal its underlying social phenomena.

3.1 | Data Collection and Sample Selection

Problem-centered interviews (Witzel, 2000) were conducted to examine the organizational management of CBM innovation. Problem-centered interviews represent a theory-generating method that integrates inductive and deductive thinking to increase knowledge of a certain phenomenon. In total, 12 representatives of nine business consultancies were interviewed over the course of two phases (April 2019 – May 2019; February 2020 – April 2020). A high-level representative of each consulting firm was interviewed. For the three relatively new and small consultancies, this representative was the founder or CEO. For the six medium-to-large consultancies, the interviewees were associates, senior consultants or department heads. The interviews, which lasted between 55 and 90 minutes, were carried out in German. Six interviews were conducted face-to-face and six interviews were conducted by phone, with the latter method used due to contact restrictions related to the COVID-19-Pandemic. The business consultancies were identified through extensive web searches and personal expert recommendations. Selection criteria focused on ensuring representatives had a high level of knowledge on the subject. Firms were selected only if advisory services for circular organizational transition processes constituted either the core competence or a substantial part of the consultancy's value proposition. The representative must have had several years of experience in the field. Firms of varying size were selected, with the sample including small business consultancies that focus solely on circular organizational change to large consultancies offering a wide spectrum of advisory services (e.g., building and supporting coalitions, venture capital assessments, strategic planning, product development, and public affairs). Geographic representativeness was also sought, with firms in Europe, particularly in Germany selected.

Business consultants were chosen as subjects because they act as advisors who use their expertise, networks, and abilities to advise firms, therefore contributing to arrangements of and developments in markets and industrial sectors. As mediators of factual and experiential knowledge, they supervise and observe organizational transitions as "experienced events" in their everyday business life. Consequently, they are relevant to social negotiation processes as economic authorities, with the ability to affect the thinking and actions of corporate leaders. As consultants have a certain degree of interpretive sovereignty over socio-economic developments, examining their experiences and insights on circular-oriented business changes assists in drawing conclusions about contemporary and future CBM formations and dynamics. Additionally, to date, no research on corporate-level circular change has relied on business consultants as a source of knowledge generation.

The problem-centered interview procedure and the semi-structured interview guide were conducted to be "as open as necessary and as structured as possible". The intention was to arrange an interview setting and a communication process during the interview in such a way that the systems of meaning and the situational subjective truths of the interviewees could unfold. Nevertheless, a certain structure was imposed to ensure comparison across interviews. The interview guide was structured using six topic clusters: (1) personal experiences with CBM innovation; (2) experiments with circular-oriented organizational transitions; (3) irritations and triggers; (4) risks associated with CBM innovation processes; (5) the functional rationality of CBMs; and (6) organizational capabilities and competencies. In a first step, the interviewees had the opportunity and space to narrate their own stories about the defined research object (topic cluster 1). The opening of the interview was therefore conceptualized to spontaneously address as many interesting and pertinent facets as possible. In a second step, passages of the shared insights, which appeared to be conspicuous and relevant for the topic clusters, were deepened by further inquiries using the pre-formulated cluster sub-questions. All interviews were recorded and then transcribed.

3.2 | Data analysis

The obtained data in the form of written communication was processed and interpreted with the use of the Grounded Theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990). This approach to data analysis allows the development of theoretical concepts grounded in the phenomenon of interest rather than relying on pre-existing models and theories[1]. Grounded theory, thus, prevents the premature narrowing of the researcher's perspective while simultaneously promoting the concise description of the observed phenomenon. Open, axial, and selective coding were used to interpret interview transcripts (Strauss, 1987). While the first coding type is often situated at the beginning of a study, with the third type situated closer to the end (Dougherty, 2002), separating these coding phases into three chronologically successive analysis phases was therefore neither appropriate nor practicable, as Grounded Theory is recursive in nature. Using open coding, we sequentially examined text blocks to open up new dimensions of meaning behind the obviously perceived surface of the text. That is, we broke down the manuscripts into subtextual interpretive codes, looking to generate as many codes as possible to ensure accurate analysis of the text. Next, the codes were categorized according to the addressed phenomenon and its relevant characteristics, contexts, and actors. Open coding procedure resulted in a list of codes placed in provisional categories alongside including comments and explanations of each code. Next, we identified several axial categories for which further elaboration seemed worthwhile. This axial coding aimed to refine and differentiate the categories and

TABLE 2 Coding paradigm, adopted from Strauss and Corbin (1990)

Components of the coding family	Explanation
Phenomenon	The real-world incident described, interpreted, and elaborated by the axial categories. What does the data ultimately address?
Causes	The term refers to conditions that contribute to the occurrence and development of the phenomenon. What leads to the investigated phenomenon?
Context	Causes usually emerge in a specific setting that facilitate or restrict the options for interfering actions of individuals and social groups. What are the circumstances for potential interfering actions?
Interfering actions	Interfering actions are processes and have therefore a temporal course. They are purposeful and often done for identifiable reasons. How do the actors stimulate or handle the phenomenon?
Consequences	Interfering actions that are focused on the phenomenon lead to certain effects. Those are not necessarily predictable and intended. What do the interfering actions lead to?
Intervening conditions	Intervening conditions refer to the overall social, cultural, technological, and ecological developments that affect directly or/and indirectly the phenomenon. What are the general circumstances that influence the phenomenon?

identify relationships between them. To establish linkages between categories, we examined passages where categories appeared in conjunction with other categories. We used the coding paradigm according to Strauss and Corbin (1990), which consists of (1) phenomenon; (2) causes, (3) context, (4) interfering actions, (5) consequences, and (6) intervening conditions to generate cumulative knowledge about the relationships between the categories as well as between the categories and the researched phenomena (Table 2). Selective coding was then employed to create a conceptual model. We identified the main attributes, interactions, circumstances, and settings of the research object to offer a condensed view of the data. Finally, to formulate propositions about the organizational transition management of CBM innovation, we constantly assessed the coding categories in light of two types of processes: "stabilization of linear business models" and "transition tendencies towards CBMs." Organizational transitions are occurrences that proceed over a certain period of time, in which something gradually emerge. Therefore, the procedural contrast of two differently evolving phenomena is of empirical value. Hence, the conceptual model reveals the central story about the phenomena that is conserved in the analyzed data. As with all conceptual models, the final model presented in this paper necessarily abstracts social life by creating a simplified picture of reality. However, a complete depiction is not intended at all. Rather, we sought to identify the main influencing parameters that appear to be important for the observed phenomena.

4 | RESULTS

Instead of presenting the results following the chronological order of the coding process, we describe them aggregated in the conceptual model "Frustrate linearity: Venturing transition towards circular business models" (Fig. 1). It depicts the main output of data analysis, displaying the main dimensions and categories related to the stabilization of linear BMs and, conversely, transition tendencies towards CBMs. Table 3 provides a glossary of the categories identified during coding and representative quotes from interview data. This conceptual model offers structured knowledge about why firms steadily reproduce linear BMs and how incumbents manifest themselves as a constant linear-oriented value creation system. The model also demonstrates organizational conditions and management strategies that frustrate the reproduction of linear BMs and, thus, enable initial moves towards CBM innovation. Analysis reveals mutual interdependencies between the categories identified during coding, which are discussed in the following subsections. Thus, they are not to be interpreted as clearly separated, but as continuously evolving and interrelated entities.

4.1 | Stabilization of linear BMs

The data collected and analyzed in this study indicate that the initiation of radical BM innovation, as they are embodied in CBMs, can be metaphorically described as a black box. A black box is a simplified representation of a complex system processing specific stimuli to

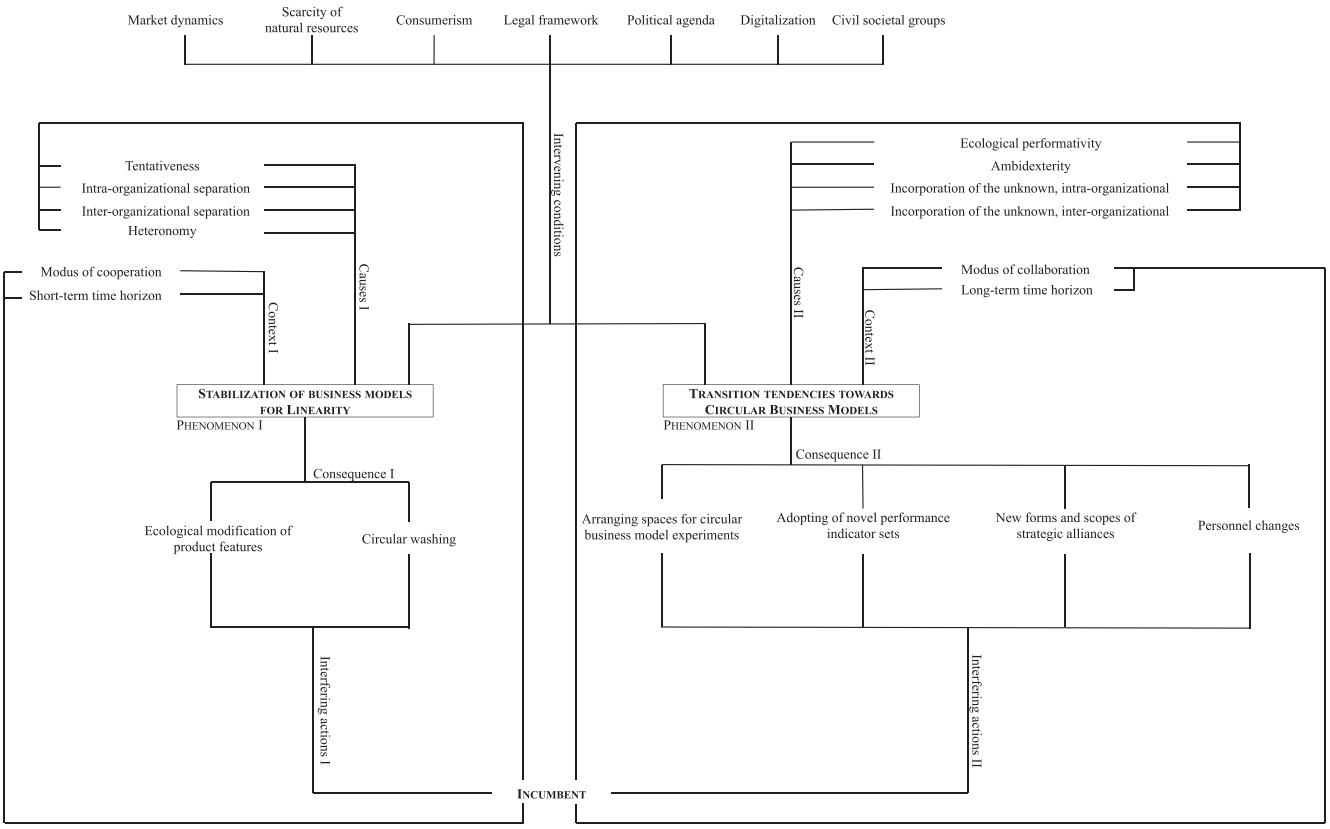

FIGURE 1 Frustrate linearity: Venturing transition towards circular business models

TABLE 3 Glossary of the conceptual model "Frustrate linearity: Venturing transition towards circular business models"

Causes I	Explanation	Quotation from interviews
Tentativeness	Tentativeness is an organizational attitude that is characterized by a lack of resoluteness and a reactive behavior. It refers to a relatively stable mindset of the company to assess a wide range of environmental developments as potentially threatening. Tentativeness is the consequence of a loss of confidence to anticipate future pathways, triggered by uncertainty and perceived heteronomy.	"They (companies) do not know how to approach it (CE in business). . . . Even then we have problems to find companies who would like to do this with us. The companies are a bit overstrained and overwhelmed."—Interviewee D "And we usually did a second workshop and the idea (CBM) was followed up, deepened again and we took into account the feedback that came from the company. Most of the time there were many barriers that were identified. . . . 'Yes, we try to change the thinking in the company and communicate the topic, but we are not doing a new project now.' So this was often the conclusion. We spread it within the company, but it does not have to be immediately."—Interviewee E
Intra-organizational separation	Structuring the organization into strictly segmented corporate divisions. Rewards for individual or departmental success instead of incentives for joint success across divisions. Interdisciplinary teamwork is rarely practiced. Lack of a holistic and systemic perspective on the own company and its social environment.	"In the classical pyramid I am actually trapped in my box as an employee. I have a job description, it says right in there: This is my job task, but please do not look left and right. This leads to silo thinking in companies. . . . The interesting aspect is that it can be observed that thinking sustainability in these boxes is incredibly difficult."—Interviewee G
Inter-organizational separation	Dividing the units of a value chain network into specialized and highly differentiated firms. Focus on core competencies. The resulting highly fragmented value chains lead to cooperation with directly connected upstream (suppliers) and downstream (customers) actors. Lack of a holistic and systemic perspective on the value creation network.	"I believe that economic activities have so far been more concerned with sealing themselves off. To protect intellectual properts, etc. And if you really want to implement it (CBM), then you have to go completely new ways."—Interviewee F "The value chains are highly fragmented today."—Interviewee B

TABLE 3 (Continued)

Causes I	Explanation	Quotation from interviews
Heteronomy	Heteronomy means "other-directed" and therefore is in contrast to autonomy. Since Immanuel Kant (1974) it has been understood as a partial restriction of the free will. However, heteronomy does not leave opportunities for self-initiated schemes and projects. It is rather a voluntarily chosen dependency on external impacts and influences to hand over the responsibility to other social actors.	"They fight with their backs to the wall."—Interviewee B "They are often not as fast as changes in society are happening at the moment."—Interviewee C "They prefer to stick to what they can do as long as the shoe does not squeeze hard enough."—Interviewee D "There are three main pressure points why companies are looking at Circular Economy." -Interviewee B
Causes II	**Explanation**	**Quotation from interviews**
Ecological performativity	The own societal efficacy (negative as well as positive) is consciously perceived, reflected, and utilized to face the ecological persistent problems of the 21st century. Future-oriented and strategic thinking does not merely strive to strengthen competitive advantages and expand market shares but simultaneously to contribute effectively to the reduction of the systemic nonsustainability. Performativity does not imply adapting to stakeholder needs in a reactive sense, as proclaimed in the stakeholder approach, Freeman & McVea, 2001), it rather means changing proactively social conditions, rules, and practices in the light of sustainability transitions. The term performativity derives from the theory of speech acts, which was developed by the philosopher of language John L. Austin (1962). He uses performativity to refer to the action dimension of speaking, that is, to do what is mentioned in the act of speaking and not merely to designate it.	"How can we as a firm not just operate by launching products on the market, but how can we actually become an enabler of a sustainable lifestyle? How can we optimize our solutions to ensure a good life?"—Interviewee D "Indeed, a holistic design of our solutions and caring for the society"—Interviewee F "My findings of the last years are: Everyone is tending to blame the others first. Always. And we are all in the waiting position. . . . Waiting for the perfect solution. Companies, they do it by the same logic. It's always the blame game. . . . I know X, they say: 'Hey, that's cool. Climate change is crucial for us, let us give it a try!' Let us give that a try. That's what is missing." -Interviewee G
Ambidexterity	Ambidexterity includes the management of contradictions, polarities, and incompatibilities (O'Reilly & Tushman, 2004, 2008; Simsek, 2009). It is the prerequisite to compose conflicting business approaches—exploitation and exploration—that allow both to coexist simultaneously. While exploitation focuses on designing mainstream linear operations more efficient (such as using less material per product or reducing production process waste), exploration aims at searching for, playing with and discovering of new CBM opportunities. Ensuring an appropriate balance between exploitation and exploration is a primary condition for long-term organizational survival (March, 1991). Nevertheless, the strategic intention is to irritate, provoke, and finally abandon the current linear and unidirectional BM through circular value creation modes.	"Circular Economy is one of our core topics" We want to do something with it, and now we are setting up a team that thinking about how we can put this into practice."—Interview A "I think they have to initiate experiments, like in the case of digitalisation. After all, there are quite a few companies that are realizing how this topic will replace their current business model in ten years at the latest. And they realize that the people they have sitting here, they are not skilled and prepared for this develoment, and they are not agile enough. And they do not know how to take the company into this new age. And what are they doing? They are often spinning off digital units."—Interviewee G "Based on my experience, in order to be successful they (CBM experiments) always have to be structural divided in some way. It does not necessarily have to be an independent company, which has a completely different ownership structure, but i think it is almost impossible to create a disruptive model within the existing business, because the experiment will always depend on the resource allocation from the core business."—Interviewee B

(Continues)

TABLE 3 (Continued)

Causes II	Explanation	Quotation from interviews
Incorporation of the unknown, intra-organizational	The boundaries between functional subsystems (departments) within the company become more transparent and porous. The aggregated expertise and experiences of several people with different disciplinary backgrounds may produce more accurate foresights and sustainability-driven decisions than those of a small number of experts. The underlying principle of collective wisdom fosters interdisciplinary management of problem solving (Birkinshaw & Ansari, 2015). Consequently, new intraorganizational forms and processes of mutual learning emerge which attempt to bring together the previously separated and unknown.	"So, I think basically they need a high degree of interdisciplinarity. They need skills to communicate with each other, how they can develop ideas together."—Interviewee E "The insight was that the teams that were actually successful with sustainable design are the ones that have an interdisciplinary teams"—Interviewee E "The first issue we need to address is that there is no disciplinary thinking. As in almost every company, or as in the scientific world, they are usually also disciplinary structured. Most of them have an organigram with a typical state structure from top to bottom, and when a project like this (CBM experiment) is done, they suddenly connect different departments in an inderdisciplinary way. And that is a big challenge for the company." -Interviewee H
Incorporation of the unknown, inter-organizational	The boundaries between the participating actors within the value creation network become more transparent and porous. Communications and the exchange of information across different actors in the value creation network are more intensive, open and flexible, so that cocreation procedures and open approaches (Open Data, Open Design, Open Standard, etc.) become increasingly important. Moreover, strategically relevant relationships between companies and noneconomic actors change. This means that consumer protection agencies, NGOs, local communities, and social-ecological initiatives (e.g., Fridays for Future) participate more directly in corporate strategic negotiation processes.	"For example, a supplier of agricultural products can explore something like urban gardening trends, where people are creating gardens privately for fun, and may ask, is this interesting for me? Do I have a link to them? Can I supply them with what I have? Do they need my knowledge? Can this become a business model? Can I actually learn something from them?"—Interviewee G "The most important thing is collaboration, especially with external parties. This means the ability to work constructively with others and to build up trust."—Interviewee B
Context I	**Explanation**	**Quotation from interviews**
Modus of cooperation	Individuals (e.g., employees) and social groups (e.g., departments, entire companies) interoperate with other individuals (e.g., colleagues) and social groups (other departments within the company or other actors across the value creation network) to pursue and achieve their own individually formulated objectives. The motivation of the participating actors to initiate jointly coordinated processes and systems is based on maximizing the individual or organizational benefits. Value creation is perceived as "succession" (one after another).	"There is still the tendency to think, plan, and act in quarter- and semi-circles, but the circle is never completely closed"—Interviewee G
Short-term time horizon	The tendency to focus economic thinking and planning on short-term gains and target definitions. The future is perceived as a corridor that refers to a relatively short period of time.	"They launched sustainable textiles on the market. 'Bio-fair would be great!' They developed their own sustainable product group, and released it. After two years the sales figures were disastrous. Disappointed they noticed to the retailer and consumers:'listen up, sustainability is important to us. We offered it, you did not buy it, and so we will not do it again. That did not pay off.'That is the classic reaction of 95% of the companies."—Interviewee G
Context II	**Explanation**	**Quotation from interviews**

TABLE 3 (Continued)

Context II	Explanation	Quotation from interviews
Modus of collaboration	Individuals (e.g., employees) and social groups (departments, entire companies) interoperate with other individuals (e.g., colleagues) and social groups (other departments within the company or other actors across the value creation network) to pursue and achieve collectively formulated goals. The motivation of the participating actors to initiate jointly coordinated processes and systems is based on securing individual or organizational viability and operability while developing solutions that address societal challenges (in the case of the CE: to close and slow down resource flows). Value creation is perceived as "togetherness" (with one another).	"And I think it requires a different kind of interaction (across the value creation network). Not just a transaction, in the sense of money and goods, but a real collaboration."—Interviewee G "It is obvious that Circular Economy, especially for companies, means: "I am not alone in the world." Traditionally, I purchased something and I delivered something else, and I wasn't interested in anything else. But when I do circular design, I have to take all my value creation network actors with me, and I have to design a circular product together with them."—Interviewee G "This means that the company must collaborate. And that is actually a completely different way, how shall I describe it, it requires the collaboration between different actors, between different companies. I think it is something completely novel that you need collaboration if you want to implement it (CBM). No company can do this alone. I guess it's almost a new, if you think about it, almost a new paradigm somehow. That you are forced to work together, maybe even with potential competitors or whatever."-Interviewee A "So that the performance of your company depends on how successfully you work together with others. And not how successfully you use your elbows."-Interviewee B
Long-term time horizon	Far-sighted and future-oriented economic thinking and planning. Acting with foresight and imagination.	Well, it's no surprise that X is doing it, where there is an ownership structure behind it that is not quite impatient as in many other companies."—Interviewee B "So, how a company manages to move away from quarterly thinking. And there are nice examples of companies that refuse to release quarterly figures because they say: 'That's not who we are. We only report annually, that has to be enough. And investors who only look at the quarter, we do not want them at all. Of course, this is extremely important, because such things, most sustainability issues, circular economy included, are issues that do not have a positive impact on business success in the next quarter."-Interviewee B
Interfering actions I	**Explanation**	**Quotation from interviews**
Ecological modification of product features	Development of new material compositions (e.g., the substition of raw materials through recycling materials), switching to biodegradable packaging or the improvement of product energy efficiency for a more ecological product design.	"Circular Economy actually means the inner cycles, those with the higher added value and not only when we focus on recycling materials, but rather leasing and so on. How can we keep the products in circulation?"—Interviewee C "A performance business model or an access business model like X or Y is much more radical." Interviewee D
Circular washing	Effective intraorganizational and interorganizational communication of CE efforts that merely peripherally changes BM for linearity. Public relations approach aimed at promoting an environmentally friendly and responsible image without sufficient evidence. The term alludes to circularity as a symbol of nature protection and "whitewashing," which means using misleading information to gloss over noncircular organizational behavior.	"Many companies tend to start gradually and argue: 'Well, let us make a product a bit more sustainable, and check if we can do something good with one product or material.' Of course, this also supports communication."—Interviewee F "Y has, I think, signed a contract with a company that recycles plastic from the sea and turns it into polymers, which Y then calls "B." Whereby my perception is that this is more like, I do not want to criticize it too much, but these are more like CSR activities, where it's a matter of demonstrating that you are doing something. But the intentions at Y on how core processes can be designed in a circular way are, to my knowledge, very, very poorly developed."—Interviewee B
Interfering actions II	**Explanation**	**Quotation from interviews**

(Continues)

TABLE 3 (Continued)

Interfering actions II	Explanation	Quotation from interviews
Arranging new spaces for circular business model exploration	Setting up arenas of circularity that are disconnected from everyday settings to test, negotiate, reflect, and evaluate new game rules with the long-term goal of replacing the existing competencies and skills that support linearity.	"We are building a small cycle out there on a green meadow far away from anything that disturbs. There you can gain experiences, earn money, involve your apprentices, there you can do whatever you want." Interviewee F "Freedom within the company"—Interviewee A, on the question what is required to implement CBMs. "The basic conditions must be fixed, but within this setting it is important to give people the freedom to live out their own creativity and drive."—Interviewee A
Adopting of novel performance indicator sets	Overall organizational success and business success is measured in balanced ecological, social, and financial performance indicator sets.	"They developed their own assessment software because they argued: 'we do have different needs and they cannot be covered with the available SAP applications.' Here, they also try completely different things."—Interviewee G.
New forms and scopes of strategic alliances	Cultivating stronger relationship meshes with actors that are directly or indirectly influenced by the value creation activities through novel consulting formats and ownership models. This may involve an advisory team with representatives of civil society groups (consulting format) or jointly-owned enterprise models such as multistakeholder cooperatives, hybrid cooperatives, or platform cooperatives (ownership models).	"When you think about good life and sustainability, you have a lot of competencies in the company, but never all of them. And you will never have the external networks that have, for example, critical NGOs in the consumer sector, in the environmental sector, in the animal protection sector, whatever. And if you take these issues seriously (CBM innovations) and you really want to make a differenc, then establish an external advisory board that will accompany you along the way (toward circularity). It will continually gives you impulses from outside."—Interviewee G "And that's where exciting new ideas emerge, and both of them leave their bubbles a little bit and try to get involved with the other's system. This is just like E, when they try to bring the NGO world into the company, which is a very important driver of innovation and also an early detection system."—Interviewee G
Personnel changes	Establishment of appropriate personality and role structures that stimulate innovation dynamics towards circularity.	"It is stuck in deeply. And when people have another idea and claim: 'We are going to do a high-risk project.' Of course, the first reaction will be: 'That is money wasting, because this is not how the market works.' The argumentation 'it is like that, it works like that', which is not malicious at all, but is simply used from a long horizon of experience of the past."—Interviewee B "Our corporate culture, is it appropriate or does the culture still need to be changed? There are often processes of personnel changes if someone does not carry such a culture. Yeah, out. I mean, yes, that's the way it is. And with generational change they often already have this kind of alternation." -Interviewee H

Consequences I	Explanation	Quotation from interviewees
Stabilization of business models for linearity	Reproduction of linear and unidirectional value creation modes.	-
Consequences II	**Explanation**	**Quotation from interviewees**
Organizational transition tendencies towards circular business models	Innovation dynamics that successively overcome linear BMs and simultaneously enable circular value creation modes.	
Intervening conditions	**Explanation**	**Quotation from interviewees**

TABLE 3 (Continued)

Intervening conditions	Explanation	Quotation from interviewees
Market dynamics	Includes intensity of competition, cost pressure, innovation pressure, etc.	"We need new approaches to remain competitive."—Interviewee D "But I think there are also the other companies that do this (CBM experiments) rather due to competitive pressure."—Interviewee E
Scarcity of natural resources	Human demand for finite and renewable natural resources exceeds their reproduction capacities, leading to their overuse and depletion.	"So, there is an economic rationale, but this is really only the case with basic materials or raw materials where a shortage is foreseeable."—Interviewee B "There was the need from a resource perspective (to reorganize the current BM for lienarity)."—Interviewee C
Consumerism	Economic theory and economic doctrine that a progressively greater consumption of goods is economically beneficial. Moreover, consumerism can be associated with personnel attachment to materialistic values and possessions.	"There must be a complete change in consumer behaviour (to change toward a CE), and this in turn requires education and awareness."—Interviewee F "Changing values and changing consumption patterns, these are the really powerful drivers (to implement successfully CBMs), which ideally also lead to the collapse of companies that are completely resistant to moving toward sustainability."—Interviewee G "And if you look at this long list about what makes us happy, you notice, ahja, in the top ten there is barely or nothing materialistically involved. So why do we strive intensely for it, if it does not seem to determine our happiness?"—Interviewee G
Legal framework	The current laws and legislative regulations at national and supranational level.	"There are a lot of laws behind it and structural processes, which all have to be changed to become active (to experiment with CBMs)."—Interviewee E "The second major driver (towards CBMs) is regulation."—Interviewee B
Political agenda	Proposed legislation and reform programs that are politically discussed, explored, and potentially adopted and implemented in the future.	"But I do not see it anywhere on the horizon of the political agenda. It is super good that the European Commission is now really taking a closer look at the CE, because, to be honest, it has to come from there, because nobody is going to kick off anything nationally. It must be an entire economic area that chooses such a model (CE)."—Interview G "This is a political task (to facilitate the way to a CE)"—Interviewee H
Digitalization	On the one hand, digitalization refers to the information transfer from an analog to a digital storage form. On the other hand, it encompasses with the translation of tasks that have been performed by humans to the computer. Furthermore, digitalization depicts social transition processes that are triggered, accompanied, and realized by digital technologies.	"I think it makes sense from a framing and narrative perspective to positively link CE with issues such as innovation, digitalization and everything that is being hyped."—Interviewee G "Digitalization is obviously a driver for CBMs."—Interviewee I
Civil society actors	Civil society actors comprise voluntary associations, charities, initiatives, nongovernmental organizations or nonprofit organizations. These also include social movements, although they are not organizations in the proper sense (e.g., Fridays for Future). The aims and purposes of civil society actors refer to general social and ecological problems as well as concerns and needs of specific groups at a local, regional, national, or international scale.	"But I think that through the pressure from the street, for example Fridays-for-Future, and from the European Union, the CE issue automatically becomes very relevant for the industrie."—Interviewee C "Fridays-for-future are the transformers, because they ask their parents at home, "What do you do at work?" And then they start thinking about it. Thet's where the reflection process begins."—Interviewee D

possible responses, without knowing how the inside of the black box is designed and organized. It is a construct that consists of both entrance and exit, but its inner architecture is opaque. Hence, a black box ensures a specific functionality, but its manner of functioning is unknown (Baecker, 1999). The results indicate that input factors that stimulate CBM implementation are known to established firms that have already started to explore circular business development. These factors tend to be predominantly debated in the strategic management, corporate sustainability, and business development departments of firms. Other functional departments, such as design, logistics, procurement, and operations, are not involved in strategic deliberations regarding circular corporate reinventions, with such exclusion reflecting intra-organizational separation (words in italics refer to the conceptual model and defined in the glossary). Applying new technologies, especially digital ones (digitalization), involving relevant stakeholders in co-design procedures of new products and services (i.e., civil society groups), cooperation within value creation networks (modus of cooperation) and reorganizing producer-consumer-relationships were frequently discussed premises for the development and successful realization of CBMs (black box input). The intended circular value creation modes include, for example, repairing, maintaining, and refurbishing of products and components, managing reverse logistic systems, and performing services (black box output). But how might the principles of CBMs (black box input) be integrated into daily business routines and how to orchestrate them to achieve the intended circular creation modes (black box output)? Beyond these internal contingencies, the data reveal that incumbents are also subjected to uncertain future profit, product streams, and product return flows. They see themselves confronted with consumers who derive their identity from possessions and satisfy their needs by shopping new products (consumerism). Moreover, they face international pressure to be competitive (market dynamics), and are exposed to governance structures and legislative regulations that directly and indirectly support linear value creation modes, represented in the model by "political agendas" and "legal frameworks." It appears that a lack of knowledge about internal initial gateways for CBM innovation as well as external social needs engenders organizational tentativeness. This timidity may result from a loss of confidence in anticipating future pathways, triggered by uncertainty and perceived heteronomy. Firms associated with the reproduction of linear BMs are described as overwhelmed by the increasing complexity of the world, with the firm's trajectory by its social environment. That is, firm actors contribute to socio-economic developments only if stakeholders provoke them. Firms, thus, are externally controlled bureaucratic organizations and as passive, reactive social actors that merely adapt to their social environment (Schumpeter, 1976). They are triggered and driven by foreignness, "fight[ing] with their backs to the wall" (Interviewee B) trying to pursue economic, social, and ecological trends through elaborated strategic plans (heteronomy). Nevertheless, to demonstrate their capacity to anticipate accusations of internal and external stakeholder groups and highlight their awareness of sustainability issues, firms associated with the reproduction of linear BMs tend to decide to change their unidirectional oriented value creation modes marginally. This is despite the extensive barriers identified by strategic management and equivalent departments. In accordance with intra-organizational separation, design and RD departments receive directives from firm decision-makers regarding experimenting with new material compositions of single products, such as the substitution of raw materials with recycled polymers collected from the ocean (ecological modification of product features). Or an apparel store manager receives instructions from senior management to provide returns boxes for used garments in the shop to demonstrate to store patrons the firm's assumption of responsibility for their products after the usage phase. Such change efforts tend to amount to isolated, small-scale top-down CE projects that only intersect with the established BM in the periphery and do not shift the extant arrangement and direction of value creation modes. The paradigm of acceleration, seen in activities such as increasing the frequency of product innovation and maximizing the number of products sold within a certain period, may thus manifest itself even more strongly. In order to respond to stakeholder claims and thereby ensure the firm's own operational legitimacy, these peripheral changes to the existing BM are communicated effectively to the public as successful CE activities (circular washing). The data show that after initial setbacks, management in this subset of firms becomes disenchanted as the desired effects of small-scale and top-down CE projects fail to materialize in the first year following implementation. For example, the sales of products made from recycled ocean plastics may eventually stagnate at low levels, or returns of used textiles may be minimal, with the cost of working with recyclers exceeding the financial benefits of the project. The expected reputational boost has not been realized, which should actually lead to an increase in sales. When project-related objectives have not been achieved within a time frame determined by strategic management, CE efforts tend to be terminated, reflecting the short-term time horizon of these firms. Firms that aspire to fulfill societal expectations through CE efforts cooperate more or less with different actor groups within the extended value creation network. For example, a footwear producer may work with beach plastic cleanup businesses and recyclers to develop and produce a new shoe model. In such cases of inter-organizational separation, functional areas and value creation roles are clearly divided among the participating network actors, who try to achieve individually formulated corporate objectives. Where cleanup businesses collect plastic from beaches, recyclers reprocess beach plastics, subcontractors create shoes on behalf of the footwear corporation, retailers distribute the product, and consumers satisfy their need for protected feet. It seems that each part of the network develop a unique approach to performing their respective functions in the value creation network in the most effective and efficient way, with the perspectives and environments of the other network participants occasionally incorporated into the firms' intra-organizational decision-making processes (modus of cooperation).

4.2 | Transition Tendencies towards CBMs

Based on the interviews conducted, it is apparent that unidirectional and linear business thinking and acting are deeply anchored in dominant patterns of organizational communication and decision-making,

making CBM innovations extremely difficult to initiate, even to imagine. As discussed in Section 2, modifications of product components or switching to biodegradable packaging are incremental changes that may elicit new eco-efficiency practices, but do not shift prevailing business rationales. As one interviewee stated, "Ultimately, it is a huge process of change. But if you seriously move towards a truly business model for a circular economy, it has tremendous impact on the firm" (Interviewee F). But how can incumbents radically rethink and restructure their linear BM(s) and explore new suitable approaches to tackle persistent ecological problems? The results indicate that employees require new and context-specific knowledge, which may be attained through experiential learning. One possible pathway for such knowledge generation is the creation of a "rehearsal laboratory," decoupled from the company core, where no restrictions on free thought exist. Arenas of agility disconnected from everyday settings, these are spaces to test, negotiate, reflect, and evaluate new game rules and courses of actions, thereby expediting the destruction of existing competencies and skills. Consequently, organizational members must unlearn the daily routines of the incumbent in order to build up transformative knowledge assets and expertise (arranging new spaces for CBM exploration). In the cases of relatively successful organizational transitions towards CBMs, the boundaries between intra-organizational departments and between the incumbent and its social environment become more transparent, permeable, and flexible. Therefore, interdisciplinary teams should be formed to explore specific aspects of circularity, focusing on mutual learning processes in order to, first, break up the existing functional department structure and eliminate associated silo thinking, and second, incorporate as many perspectives as possible into decision-making processes. Such teams would work to overcome the prior inflexibility associated with intra-organizational separation, resulting in new horizontal connections between employees, who may in turn gain a better picture of the overall resources as well as operational and strategic activities of the firm (incorporation of the unknown, intra-organizational). In addition, incumbents characterized by transition tendencies towards CBM innovations employ advisory boards that function as CBM transition instigators. They are often composed of consumer watchdog groups, social association employees, dedicated members of environmental protection organizations, members of digital ethics think tanks, and human rights activists who are expected to scrutinize contemporary value creation modes (civil society groups). The regular exchange of thoughts, ideas, and critiques may promote the adoption of a holistic economic perspective and simultaneously encourage social-ecological innovation capabilities (incorporation of the unknown, inter-organizational). But what does a holistic approach to economic thinking mean in the CBM context? On the one hand, new forms of intra- and inter-organizational relationships may be embedded in a corporate identity emanating from a mission to proactively influence society. For incumbents pursuing such a corporate identity, a creative will seeks to shape social-ecological trends and explore new ways of social bonding (modus of collaboration), working alongside the goal of long-term market existence. In such cases, the organizational raison d'être and primary motivation for the firm no longer consists merely of maximizing the user-centeredness and user-friendliness of offered solutions, but also includes reducing the end-user consumption of natural resources and concomitantly increasing the added social value (ecological performativity). Consequently, a firm's perception of time shifts to a long-term time horizon. The employees become aware of their impact horizon in terms of that they do not just decide upon corporate operations that influence the market, but also the society and future generations. The targets associated with the aforementioned spaces of agile CBM exploration are adopted for the long run. Failures and erroneous developments are more likely to be interpreted as contributions to capacity building that ensure future viability. A frequently quoted business axiom is that management cannot succeed without measurement based on reliable performance indicators. Admittedly, this is a half-truth, since in practice, processes of organizing frequently are difficult to measure. Nonetheless, evaluation and assessment methods offer firms a basis to monitor success. Moreover, they enable verification of whether an incumbent has become more circular over time. Taking into account a firm's reorientation from purely monetary-based rationalities to a robust full cost accounting of doing business, including ecological and social externalities, performance indicator sets consider corporate impacts on environmental conditions and strive to reflect corporate ecological performativity (adopting novel performance indicator sets). According to the interviews, in some cases, however, managing directors, department leaders, unit heads, or long-standing members deeply rooted in the organization tend to perceive such radical types of CBM innovation as a threat to their positions of power. It appears that based on the success of the linear BM in the past, a shared mental model of "how to become the fittest," created through acquired knowledge and shared experiences, may work to prevent CBM innovation endeavors. However, to prevent resentment and the proliferation of reactionary forces, at some point, personnel changes must be made. Establishing appropriate personality and role structures may be vital for successful orchestration of CBM innovation processes. While the dismissal of decision-makers may liberate business practices from the influence of certain personality structures, a possibility that newly hired actors will introduce other interpretive and evaluative schemes to the organization because of their biographies, socialization, and educational backgrounds.

5 | DISCUSSION AND CONCLUSION

CBMs as a form of radical organizational change may bring completely new benefits to the market and society, thereby ensuring the long-term existence of firms in a world where multifarious pressure on firms tend to increase considerably. Firms most likely require new forms of organizational capabilities, resources, and technological competencies in order to create and serve future markets. CBM innovation dynamics tend to exceed organizational capacities of complexity management compared to recurring efficiency efforts or adjustments to operating routines. Transitions to CBMs are highly uncertain projects akin to a black box, not only for incumbents, but also for the scientific community. Interview data suggests that a lack of theoretical

and practical knowledge about CBM innovation processes reinforces organizational rigidity and structural inertia, which, in turn, limits a firm's strategic ability to navigate CBM innovation. To reduce such inflexibility and to be capable to operate despite the diffuse openness of evolution pathways, constructing and prioritizing options for action is necessary to absorb uncertainty (March & Simon, 1958). Not all firms have the ability to develop adequate solutions under high levels of fragility across multiple dimensions, lacking the organizational foundation to commence substantial transitions towards circularity. Some firms may be more capable due to their structural features and context or other organizational design factors such as dynamic capabilities (Teece, 2007), strategic agility, leadership styles, resource fluidity (Doz & Kosonen, 2010), strategic flexibility (Bock et al., 2012), and critical capabilities (Achtenhagen et al., 2013), or moderating factors like power constellations (Stieglitz & Foss, 2015). However, it is erroneous to assume that firms that have already successfully initiated radical BM innovations will be able to also do so in the future. Those that have continued to survive using a linear BM have proven that their "fitness" for linearity thus far. Nonetheless, it is a logical fallacy to infer future viability from past achievements, especially against the background of the ecological challenges to which firms must find answers. There is a broad consensus among the experts interviewed that the challenges of managing CBM adjustment or CBM adaptation, reconfigurations that emphasize production efficiency efforts and new product material compositions, are quite distinct from those associated with radical CBM innovation designed to test entirely new types of value creation modes in a setting with a long-term orientation (O'Connor, 2008; O'Reilly & Tushmann, 2008; Smith & Tushman, 2005). This study's results indicate that launching CBM innovation requires new spaces for organizational realignment. In a sense, a prepared value creation space for experimentation, in which the future of the incumbent is tested, negotiated, and evaluated, is needed. Fundamental organizational restructuring from within is too risky, since far-reaching changes destabilize the organization to such an extent that it may slide into an existential crisis. Based on the concept of organizational ambidexterity (Tushman and O'Reilly, 1997), there is a need for a polycentric structure that allows conflicting approaches – linear BMs (organize the existing linear mainstream operations more ecological efficient through CBM adjustment and CBM adaption measures) and CBMs (investigating the unknown) - to simultaneously coexist, with the goal of transferring the knowledge assets gained and capabilities learned through a newly established interdisciplinary team of circularity and, by extension, abandoning the linear value creation mode of the incumbent firm gradually. This type of polycentric structural design implies separate but interconnected value creation systems - an oxymoron - that serves contemporary markets while simultaneously attempting to create and enter new CE markets. The primary goal of this structural design is to stabilize the overarching firm in the process of circular self-dynamization in which resource flows are slowed and closed. The challenge of ambidexterity is to ensure suitable structural demarcation between the conflicting value creation systems without separating them completely (Birkinshaw & Gibson, 2004). Management must enable spaces for creative freedom and establish transmission channels that facilitate reciprocal learning processes in order to foster positive spill-over-effects from circularity. This may lead to a broader, circular-oriented organizational transition over time (Leifer et al., 2000). The strategic direction must legitimize, internally, a coupled autonomous and risk-tolerant space for CBM innovation (Rotenberg & Saloner, 2000). Clear coordination and transparent transition management seem to be vital to decrease the likelihood of disagreements, acts of sabotage, and infighting between the different value creation systems that can nip organizational transitions in the bud (O'Connor, 2008). The results of this study lend themselves to the following first proposition about organizational conditions that facilitate firms' transition towards CBMs:

Proposition 1: CBM innovation requires an intra-organizational but autonomous experimental space that is segregated but nevertheless coupled with the incumbents' broader setting to test, negotiate, reflect, and evaluate new game rules for circularity.

In contrast to individuals, organizations can perform simultaneous and spatially divided activities that contradict each other. Structural differentiation enables the incumbents to avoid deciding between logically antagonistic value creations systems (Simon, 2018). It allows firms to process linear and circular BMs simultaneously. The incumbent, as an aggregated organizational ensemble, is capable of operating, despite the conflicting core modes for creating and capture value that characterize its autonomous but coupled value creation systems. The advantage of this polycentric structure is that these conflicting value creation systems can each operate unambiguously and coherently, despite all the paradoxes and ambivalences the superordinate overall incumbent organization is exposed to. Accordingly, a structural conglomerate of old and new is emerging, one in which linear BMs may be declared obsolete and antiquated in the foreseeable future that will be characterized by increasingly restricted access to natural resources, more volatile resource markets, and more stringent laws for environmental protection. Therefore, the long-term mission of an experimental space for circularity must be to develop circular-oriented business solutions that cannibalize the existing and currently successful linear BM(s) (Christensen, 2016; O'Reilly & Tushman, 2008). Ultimately, in addition to the operational processing of antagonistically functioning value creation systems, another paradox of organizational transition management of CBMs is reflected in vital need for the incumbent to cannibalize itself, and the markets in which the firm operates, to ensure its own future. That is, firms must secure their futures through creative self-dissolution (Schumpeter, 1934). The 'linear old' creates the 'circular new' out of itself, and that is the paradox (zu Knyphausen-Aufseß, 1992).

Proposition 2: Organizational transition management of circular business model innovations requires the management of paradoxes.

The development of CBM innovations usually fails due to a lack of imagination of circular value creation modes, since the traditional knowledge assets of how to manage, structure, and organize

companies prevent the successful design and implementation of CBMs. To transform the hitherto unimaginable into a range of potential economically viable CBM reconfigurations, any newly established experimental spaces for circularity requires a management triad consisting of (1) the adoption of the zooming-in/zooming-out approach (Kanter, 2011); (2) an effective moderation of heterogeneity; and (3) decision-making procedures based on the normative reference frame of ecological performativity.

Zooming-in/zooming-out The zooming-in/zooming-out approach attempts to prevent breaking systems into constituent parts, focusing instead on complex interrelations and interactions within and between systems. This approach structures BM(s) by reference to the social and ecological environment. Furthermore, zooming-in/zooming-out covers the operative and effective coordination of the value creation system in the here and now (Kanter, 2011). Zooming-out helps draw a holistic picture of the reality instead of separating it into different fragments. It promotes the ability to adopt an "outside-in" observer position that illuminates and contextualizes problem situations and potential solutions from as many different perspectives as possible. The practice of zooming-out is a prerequisite for thinking in complex circular and cross-sectoral value creation business networks as well as in new forms of long-term collaboration across different branches, and is, therefore, of great importance to elaborating and testing CBM variations. Zooming-in comprises flexible handling and further development of expertise, competencies, and knowledge assets in everyday business. It is concerned with creating an environment in which ideas, problems, and solutions are communicatively processed and explored with internal and external stakeholder groups. In other words, zooming-in refers to the palpable and intuitive testing of circular value creation activities and processes with new technologies in the light of limited organizational resource capacities. Here, it is crucial to understand that systematically sharpening and scanning the big-circular picture (i.e., zooming-out) and cautiously spotting and testing new circular value creation modes in concrete terms (i.e., zooming-in) are processes that should be rotated and interlinked at any given time. As such, the success of CBM innovation management depends on the situational oscillation between (1) keep tracking of the vision of proactively contributing to a transformation towards a circular society (Jaeger-Erben et al., 2019) through ecological performativity and (2) mobilizing resources to overcome the operational challenges of translating the principles of CBMs into day-to-day business practices.

Effective moderation of heterogeneity To avoid unidimensional silo mentality and simultaneously encourage cross-functional and cross-disciplinary thinking among the members of an interdisciplinary CBM exploration team, the team – in addition to management - also needs to master the zooming-in/zooming-out approach. The team must constantly oscillate between members' own disciplines, the organizational value creation system, and the social and ecological environment. If the bundle of different individual mental models (i.e., images about the functioning and dysfunctioning of potential CBM variations) among the team members is to result in a fruitful choreography, then management is needed that effectively moderates the emerging cognitive diversity in order to trigger mutual learning processes. Successful consolidation of heterogeneity creates an organizational breeding ground for the joint modeling of and initiating of CBM prototype(s) that steadily refer back to the dynamic reciprocal positive and negative linkages with the social and ecological environment. The purpose of heterogeneity moderation is to unite multiperspectivity and enable collective testing, observing, questioning, and sharing of ideas about how novel networks of intra- and inter-organizational value creation activities and processes can emerge and culminate in innovative CBMs.

The normative reference frame of ecological performativity Within newly constituted experimental spaces of circularity, a multitude of communications, decisions and series of acts are performed parallel to one another. These must be meaningfully interlinked, so that despite a volatile, uncertain, complex, and ambiguous world (Bennis & Nanus, 1985), experiments with, testing of, and work towards CBM prototype(s) are promoted and pushed forward. The reference frame of ecological performativity functions as a collectively relevant schema of meaning and orientation, directing operative and strategic decision-making procedures on CBM-related themes such as value creation activities and the setting-up of collaborative value creation networks. The firm's societal efficacy (negative as well as positive) is consciously perceived, reflected, and utilized by the members to face the persistent ecological problems of the 21st century. Future-oriented business thinking does not merely strive to strengthen competitive advantages and expand market shares but contribute effectively to the reduction of systemic non-sustainability as well. Ecological performativity does not imply reactive and opportunistic adaptations to stakeholder needs, as suggested by the stakeholder approach (Freeman & McVea, 2001). Rather, it means proactively changing, adopting self-paced social conditions, rules and practices oriented towards fostering a sustainable reciprocity between the production and consumption spheres.

Proposition 3: The successful balanced nexus of (1) the adoption of the zooming-in/zooming-out approach; (2) an effective moderation of heterogeneity; and (3) decision-making procedures based on the normative reference frame of ecological performativity enables the emergence of viable long-term CBMs.

In spite of growing attention being paid to CBM innovation, linkages between the organizational dimensions of transitions remain a decisive gap in the literature. This study attempts to fill this gap by identifying influencing mechanisms that foster or hinder the selection of CBM configurations, and formulates a set of three propositions on organizational conditions and management recipes that encourage the dynamic stabilization of CBMs. It tentatively contributes to the development of a new theory of CBM innovation but requires further scientific knowledge production for conceptual advancement. One area for further research is the investigation of how an autonomous and collaborative-oriented experimental space for circularity interacts with the superordinate firm most effectively and how interrelations should be structured to create compatible

and fruitful outcomes. Is it sufficient to organize a four-hour CBM forum every two weeks or do successful CBM transitions require a new department, spin-off, or joint venture? How can coordination between the superordinate firm and the interdisciplinary CBM exploration team be managed, who is responsible for such coordination, and which communication structures are the most effective at this task? Does the concept of organizational ambidexterity differ between radical linear BM innovation and CBM innovation? What collective competencies and capabilities does a company need in order to manage the paradox between circular exploration and linear optimization? Furthermore, future CBM research should address the challenges of appraising the ecological impacts of CBMs at the system level. As Manninen et al. (2018) argued, scientific work should concentrate on developing environmental performance metrics for firms implementing CBMs. Another objective of future transdisciplinary research should be the investigation of different facets of inter-organizational relationships amongst firm units that initiate CBMs and associated stakeholder groups in order to deepen the understanding of collaborative value creation networks within market-based environments. How can they be cultivated during the development of CBMs from seizing of opportunities to market launch and monitoring? Finally, it must be noted that this study uses the process of data analysis method of Ground Theory to formulate propositions, which, in a next research phase, need to be empirically tested, specified, and further developed. Against the backdrop of theoretical sampling of the Grounded Theory, further heterogeneous cases and case groups (e.g., corporate case studies from different industrial sectors) need to be investigated in order to create a robust and differentiated theoretical framework that explains organizational transition management of CBM innovation.

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CONFLICT OF INTEREST

The authors declare no conflict of interest. The founding sponsors had no role in the study design; collection, analyses, or interpretation of data; writing of the manuscript and decision to publish the results.

ORCID

Florian Hofmann https://orcid.org/0000-0002-0111-9607

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